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THE ORIGIN OF THE SIGNS OF THE ZODIAC

The Unicorn: a Mythological Investigation. By Robt. Brown, Jun. (London: Longmans, Green, and Co., 1881.)

Astral Origin of the Emblems and Hebrew Alphabet. By J. H. Broome. (London: Edw. Stanford, 1881.)

IT is perhaps unjust to Mr. Brown's very attractive and suggestive book to couple it with the wild and ignorant lucubrations of the Rev. J. H. Broome. Mr. Brown has collected his facts from the latest and best authorities, and displays a wonderful amount of wide reading. His main object is to show that the unicorn of heraldry is the last faded representative of the horned moon of early mythology who struggles in vain with the solar lion, and among other curious points which he seems to have made clear is that the *Triquetra* of Sicily, the three legs of the Isle of Man, is the lunar ass of the Bundeshesh with the triple legs. His book supplies another illustration of the close connection that exists between mythical astronomy and mythical zoology. As for Mr. Broome it is sufficient to say that he supposes the square Hebrew characters to constitute an independent alphabet of early origin, and the zodiac of Denderah to be "the oldest planisphere in the world, apparently referring to a time when the winter solstice, 4000 B.C., was quitting Pisces to enter Aquarius." Before he again commits himself to print, a study of some elementary work on the history of the alphabet, as well as some acquaintance with Hebrew and Arabic, would be advisable.

The subject, however, which he has attempted to handle is really an interesting one. The origin of the signs of the zodiac is a question which we have but recently obtained materials for answering. Even the origin and meaning of the symbols by which they are represented are unknown to most of those who are in the habit of using them. Some of these symbols, certainly, are plain enough: it is not difficult, for instance, to discover the horns of the bull in the symbol of Taurus, or the arrow in that of Sagittarius. But the meaning of others, such as the symbols of Virgo, of Scorpio, or of Capricornus, is not so self evident. These symbols, however, are of comparatively modern invention, and first came into use along with the symbols still employed by astronomers to denote the planets. In an interesting article upon the latter in *La Nature* last January, it is pointed out that they cannot be traced further back than the tenth century, and owe their origin to the connection the alchemists believed to exist between the planets and the metals. The precise forms of the symbols were not fixed immediately, and Letronne (*Revue archéologique*, iii. p. 261, 1846) maintains that at first the initial letters of the names of the planets were employed, of which the Greek Z, still representing Zeus or Jupiter, is the sole survival. The symbols of Mercury, of Venus, of Mars, and of Saturn are respectively pictures of the caduceus, the mirror, the spear and shield, and the sickle which characterised the deities after whom the planets were named. The cross which surmounts the globe of the

earth points to Christian influence, and is probably not older than the sixteenth century, while the trident of Neptune has been substituted for the L. and V. of the name of Le Verrier only within the last half-century, and the symbol of Uranus is little more than the initial H of the name of Herschel.

But modern though the symbols of the planets and zodiacal signs may be, it is quite otherwise with the signs themselves, and the majority of the names by which we still call them. Recent research has shown that the general voice of classical antiquity was right in regarding the Chaldeans as the first to map out the path of the sun during the year into separate regions, or constellations. Copies made by Assyrian scribes of older Babylonian works on astronomy have been found in the library of Nineveh, and are now in the British Museum. From these we may form some idea of the astronomical notions which prevailed among the Babylonians 4000 years ago, as well as trace almost to their beginning the so-called Signs of the Zodiac.

The primitive population of Babylonia, now known by the name of Accadians, did not belong to the Semitic race, but spoke an agglutinative language like the Finns or Turks of to-day. It was they who first made Chaldea famous for its study of astronomy, and it is to them that the Signs of the Zodiac are due. Each sign represented a month of thirty days, and the signs and months were accordingly called by common names. As far back as our records carry us the year began with Aries, but we have indications that the names of the zodiacal signs were originally given in that remote epoch when the vernal equinox still coincided with the entrance of the sun into Taurus. At all events the Accadian name of the second month and second sign is that of "the directing Bull," a name which could have a signification only when the Bull directed the course of the year.

Why the opening of the year was thus placed under the protection of the Bull we are now able to explain. The ecliptic, or "path of the sun" as it is sometimes expressly called, was also termed "the furrow of heaven," and the planet Jupiter was commonly known as "the planet of the furrow of heaven," or "the bull of the sun." The sun-god, Merodach, when regarded as passing through the zodiacal signs, was addressed as Gudibir, "the bull of light," which must, therefore, have been another way of naming the ecliptic. Since the Accadian term for planet literally signified "old sheep," while Arcturus, the Bootes of the Greeks, was called "the shepherd of the heavenly flock," it is evident that the agricultural population of early Babylonia looked upon the sky as a vast field, filled with flocks and herds, where the sun, like a toiling bull, "directed" the plough through the bright furrow of heaven. The belief that the celestial bodies were animals was not confined to the Accadians; we find it prevailing among uncultivated tribes all over the world. The only way in which primitive man was able to explain the motions of the stars and planets was by supposing them to be endowed with the same life as the animals by whom he was surrounded.

The origin of the name of Aries is less clear. In Accadian the sign is called "he who dwells on the altar of uprightness," and is explained to mean the god Bel. Possibly we have here an allusion to the Assyro-Phœnician

legend of the sacrifice by Bel of his only son, the Sun-god, for whom a later and more humane age substituted the ram. In the tariffs of Carthage and Marseilles a ram takes the place of the human victim of the earlier cult.

The usual Accadian name of the third month was that "of bricks," on account of the suitableness of May for house-building; but I have also found it called "the double one," in reference probably to the twin stars which were supposed to preside over it. Gemini is of course the modern descendant of this title. Cancer I cannot account for, and the name was perhaps of Greek origin, like Libra, which, as we learn from Achilles Tatius, was originally denominated the Claw of the Scorpion. Leo is at present equally obscure, but Virgo goes back to the Accadian sign of "the errand of Istar," a name due to the belief that it was in August that the goddess Astarte descended into Hades in search of her betrothed, the Sun-god Tammuz or Adonis, who had been slain by the boar's tusk. The month and sign which follow were dedicated to "the illustrious mound," the building of the tower of Babel being believed to correspond with the autumnal equinox. "The scorpion" was the chief star of the next month, the usual name of which, "the month which faces the beginning (of the year)," seems to prove unmistakably that the year began with Taurus when the Accadians first named the months and signs. I cannot explain Sagittarius, but the goat was the Accadian name of the constellation Capricornus, and "the rainy season" was the title given to the month which was watched over by Aquarius. Finally, "the month of sowing" was that in which the Sun-god in his journey through heaven was called "the fish of Hea," the god of the sea.

It is evident from this that several of the names had a mythological parentage, and were due to the fact that certain myths were localised, as it were, in particular months. But other names equally clearly originated in the peculiarities of the season when the sun was in a special sign of the zodiac. This is certainly the case with Aquarius, and it is probable that fish were particularly abundant under Pisces when the lowlands of Babylonia had been inundated by the rains. Other names, again, were derived from the chief stars which lay near the path of the sun; and the stars, as we have seen, were imagined to be endowed with life and so compared with the animals of this nether earth. Among the names of the stars preserved to us in the Assyrian tablets, a large proportion are those of beasts and birds. It was these which gave the signs of the zodiac their zoological appearance, and caused the whole circle of signs to be designated by the Greeks the ζῳδιακός, or "circle of animals."

A. H. SAYCE

THE GEOLOGY OF SUTHERLAND

Geological and Mineralogical Map of Sutherland. By M. Foster Heddle, M.D., F.R.S.E., &c., President of the Mineralogical Society of Great Britain and Ireland.

ANYTHING relating to the Geology of Sutherland has a great interest for British geologists. It was there that the battle of the "North-West Succession" was fought out by Murchison, whose conclusions have been acquiesced in by most geologists. Notwithstanding

the evident simplicity of the structure of the country, there have always been some who have demurred from his interpretation, and who, discovering a few inaccuracies in his work, have endeavoured to invalidate its general results. The last phase of this dissent has just appeared in the form of a geological and mineralogical map by Prof. Heddle, and accompanying papers on the Geognosy of Sutherland, published in the *Mineralogical Magazine*. The map clearly shows a lower gneiss separated by the wreck of a wide-spread unconformable formation of sandstones and conglomerates from a higher group of quartzites, limestones, and schists. Thus far it corroborates Sir Roderick. The author however tries to prove from the evidence afforded by chemical analysis that the Durness limestone with its lower Silurian fossils has no relation to any other rocks in the country, and consequently that there is no evidence of any other part of the Highland rocks belonging to the Silurian system. For this information we require to have recourse to the "papers," as the map only indicates that the Erribol and Assynt limestones, which Murchison and most geologists have identified with those of Durness, are dolomitic. They are therefore expressed by different colours. The physical and palæontological evidence, however, appears to be entirely against this notion.

It is probably quite true, as Murchison himself pointed out, that at Durness the junctions of the limestone with surrounding rocks, whether upper or lower, are chiefly lines of fault. But it is no less certain, from the same testimony, that this limestone, with its admittedly Lower Silurian fossils, is seen to lie conformably upon and to form part of a lower quartzite, and itself to contain bands of quartzite. No later rock is seen to lie upon the limestone at Durness; but most geologists who have visited the locality appear to have no hesitation in identifying this limestone with the band which runs on the top of the lower quartzite from Erribol through Assynt far into Ross-shire. Dr. Heddle maintains that the identification must be wrong, because chemical analysis shows the composition of the limestone to be different. Chemical analysis, though a useful help, is not always a safe basis for stratigraphical work. In the face of distinct palæontological facts, it must at once be set aside. Some of the same fossils which occur in the Durness Limestone are found also in strata associated with the Erribol and Assynt Limestones. The *Serpulites Maccullochii*, so characteristic a fossil of the zone immediately below the Assynt Limestone, occurs also in the limestone of Durness. Orthoceratites have been detected in the limestone of Assynt.¹ The cause of the difference in composition between the rocks at Durness and in Assynt may very properly be made the subject of chemical investigation, but all the analyses in the world cannot overturn the evidence of recognisable fossils.

The Assynt and Durness area is the only part of Dr. Heddle's map which has been worked out in detail, and which gives a fair idea of the geological structure of the ground. On a map of such a scale as half an inch to a mile, one would naturally have expected marked petrographical bands, and the general disposition of the rocks, to have been clearly distinguished. But in these respects the author has not availed himself of the opportunity

¹ "Siluria," 4th edit. p. 166 (footnote).